GREEN INDUSTRY STRATEGY
STRATÉGIE ÉCO-INDUSTRIELLE

Ontario's Green Industry Strategy

La stratégie éco-industrielle de l'Ontario

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Ontario

Ministry of Environment and Energy
Ministère de l'Environnement et de l'Énergie

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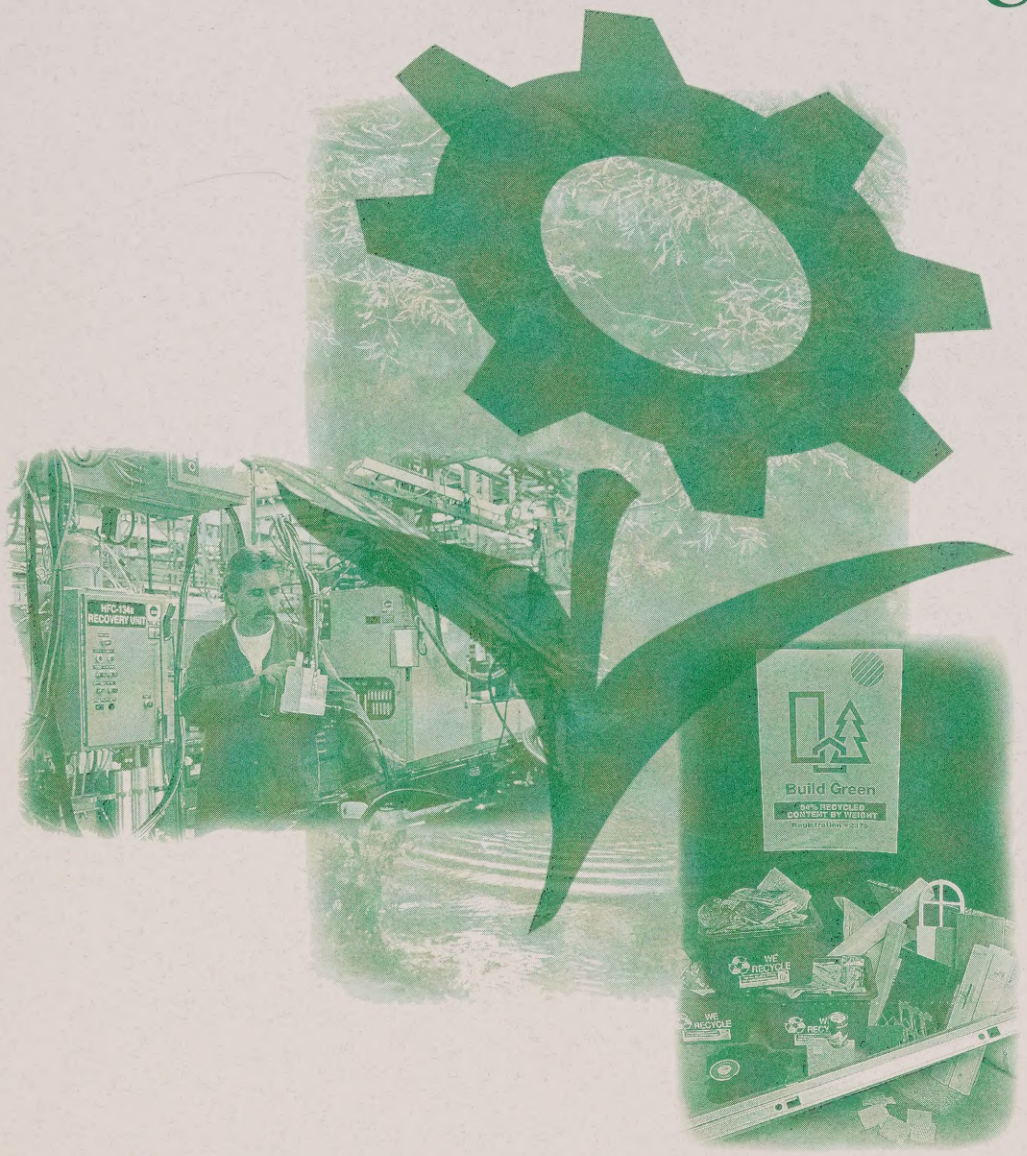


For A Clean Environment & Strong Economy

Ontario

contents

The Importance of a Strong Green Industry Sector

GROWING WORLDWIDE DEMAND FOR GREEN PRODUCTS AND SERVICES — those that prevent pollution, protect or clean up the environment — presents Ontario with enormous opportunities to create new wealth and new long-term, highly skilled, high-paying jobs.

The Green Industry Strategy sets out to ensure that Ontario industries capitalizes on those opportunities. The strategy therefore consists of activities which strengthen the green industry sector so that Ontario companies are in a position to compete successfully in growing world markets. These activities will create additional demand for new technologies, build and expand markets and promote export growth.

The Green Industry Strategy will help to protect and preserve Ontario's environment while creating jobs.

Build Green, a new product labelling program, will identify recycled building products.

The long-term vision for the sector is an innovative and internationally competitive green industry sector in Ontario which offers high quality jobs and develops leading edge environmental solutions for domestic and export markets.

The objectives of this strategy are:

(i) to stimulate the growth of the green industry sector, thereby creating new wealth and highly skilled, long-term jobs;

(ii) to enhance the competitiveness of all industries by promoting the use of green products and services;

(iii) to promote environmental protection, pollution prevention and resource conservation.

The Green Industry Strategy builds on strength. Ontario already has many successful environmental companies and the Ontario government through many of its ministries and agencies has provided various kinds of support for this sector.

Doug Hallett, president of Eco Logic Inc., proudly displays his PCB-eating machine.

The new initiatives address the needs of the sector as identified through wide consultation within the sector. The strategy stems from recommendations developed by the Green Industry Ministerial Advisory Committee (GIMAC), a 16-member group representing industry, labor and the environmental community. GIMAC was established in 1993 by the Ministry of Environment and Energy to identify initiatives to strengthen the green industrial base and develop a strategic plan for the sector.

A strong green industry sector will present environmental and economic benefits that are widespread and long-term. It will help to ensure that Ontarians today and in the future continue to enjoy clean air and water and all the other benefits of a healthy environment. It will also help Ontario adapt to changes in the world economy, making the adjustment from a resource-based to a knowledge-based economy, which will be the main source of job growth in the future.

What is the Green Industry Sector?

The green industry sector includes companies that offer goods or services to prevent pollution, protect or clean up the environment. Companies in the green industry sector are concerned with:

- pollution prevention
- environmental protection
- water conservation
- energy conservation and efficiency
- waste reduction, reuse, and recycling (3Rs)
- remediation

As the green industry sector grows and evolves, so does the variety of green goods and services. These include wastewater treatment equipment, energy-efficient lighting, high efficiency motors, consulting engineering, environmental auditing, hazardous waste transportation and disposal, groundwater monitoring and treatment, central composting systems, remote sensing and site cleanup management — to name just a few.

A strong green industry sector will also help to create an innovative culture — the hallmark of a successful economy in today's world. It will develop and deploy leading edge technologies. It will create new high value-added jobs in the green companies themselves. And because the strategy encourages all industrial sectors to use green technology and practices, it will help boost the competitiveness of industry across the board, helping to maintain current jobs and create new ones.

A strong green industry sector will also foster skills development, adding to the flexibility of the workforce. And a highly skilled and specialized workforce will serve to attract and retain investment, domestic and international.

The success of this strategy ultimately depends on partnerships — particularly on the close cooperation of governments, industry, labor and the environmental community. Strong partnerships will ensure not only that the strategy works today, but also that it keeps pace with change and continues to serve Ontario in the years to come.

Ontario has long been a centre of industrial strength and as a result has been able to provide a high standard of living for Ontarians and to contribute substantially to Canada's growth and prosperity. This strategy will enable Ontario to continue that leading role. In helping the province to meet the challenges of a rapidly changing world economy, it will provide a source of wealth and environmental advantage for current and future generations.

> The environmental industry is currently one of the fastest growing sectors in Canada and is clearly a major domestic and international growth industry for the foreseeable future. This presents Ontario, which has 40 per cent of the Canadian market, with an excellent opportunity for economic growth and the creation of high calibre knowledge-based jobs. Also, with Canada's good reputation abroad and Ontario's depth and breadth of environmental expertise, Ontario should be one of the winners in the international arena.
>
> Ronald V. Portelli
> General Manager
> BOVAR-CONCORD Environmental
> a division of BOVAR Inc.
> and
>
> Chairman of the Board of Directors
> Canadian Council for Human Resources in the Environment Industry

Building on Strength

ONTARIO'S GREEN INDUSTRIES HAVE AN INTERNATIONAL reputation for environmental leadership and throughout the province there are thousands of successful environmental firms. The Green Industry Strategy is therefore building on a very solid base. Our environmental protection industries in particular have been extremely successful, and in some areas — water and wastewater treatment technologies, for example — Ontario is a world leader.

There are a number of subsectors within the green industry sector. Besides environmental protection, these include resource conservation and efficiency, pollution prevention and the 3Rs.

Environmental protection is the largest (and the only sector which is well documented). In 1990, Ontario accounted for approximately 40 per cent of Canada's total sales in the environment protection industry. There are 1,500 to 2,000 firms in this subsector in the province and they had 1992 revenues of about $2.5 billion. Approximately 15 per cent of all sales are exports, primarily to the United States.

Environmental services account for three-quarters of sales, with the largest segments being consulting engineering, environmental consulting, solid and hazardous waste management and recycling services; pollution assessment and control; and laboratory services. In environmental products, Ontario's strengths are in the areas of water and wastewater technology and services, solid waste handling and treatment, and control sampling and monitoring equipment.

Green industries in the resource conservation and efficiency subsector are those that promote the efficient and economical use of energy, raw materials, waste and water. These include firms providing high efficiency motors and lighting, low-flow showerheads and toilets, and energy-efficient appliances and windows.

This subsector also includes renewable energy companies, which supply solar, biomass, wind, small scale hydro and tidal energy technology and alternative energy firms dealing with clean transportation fuels.

The pollution prevention subsector is concerned with eliminating or reducing wastes or pollutants at source by changing traditional industrial processes, substituting materials used in production and changing human behavior. For example, changes in the manufacturing of paint to produce water-based paints and adhesives prevent pollution in two ways: they eliminate air pollutants during both the production process and application. This subsector offers strong growth potential as industry incorporates the concept of reducing pollution at source. In the long term, pollution prevention is generally less costly than pollution abatement or remediation.

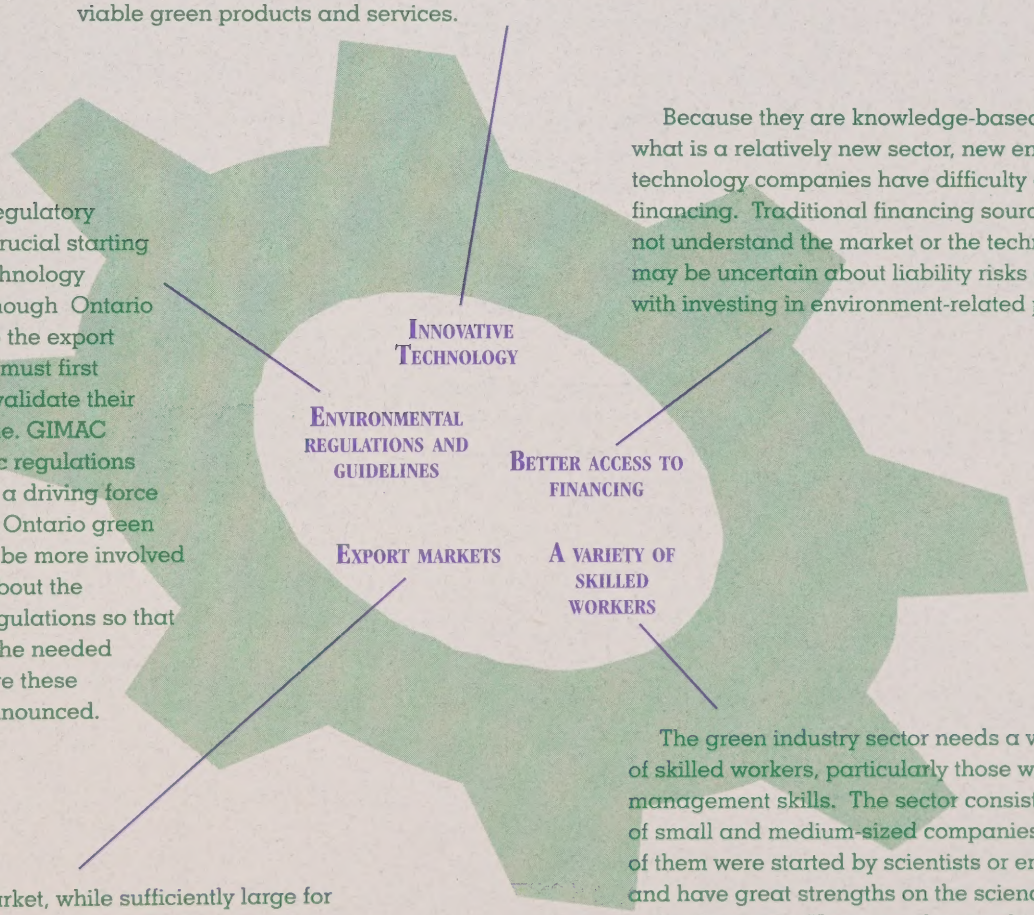
In the 3Rs subsector, which is concerned with reducing wastes and reusing or recycling materials, Ontario has developed a number of leading edge technologies. These include in-vessel composting, rubber tire recycling and proprietary technology for recycling cardboard into fine paper. In addition, the province is known for its management expertise in the design and delivery of curbside recycling programs.

> "The Green Industry represents one of Canada's strongest prospects for job growth and wealth creation. Ontario has the highest concentration of environmental companies and stands to benefit substantially. The Green Industry Strategy will provide the framework to enable this sector to grow and many new and successful companies will emerge as a result. OCETA's role is to focus on helping small and medium-sized enterprises commercialize new environmental technologies and become part of Ontario's growing environmental industry."
>
> Ed Mallett
> CEO and President
> Ontario Centre for Environmental Technology Advancement (OCETA)

The Needs of the Green Industry Sector

THE GREEN INDUSTRY STRATEGY ADDRESSES THE NEEDS OF THE SECTOR, AS IDENTIFIED BY THOSE MOST closely associated with it — the Green Industry Ministerial Advisory Committee, which was composed of representatives of industry, labor and the environmental community. GIMAC identified the following needs:

Green industry is highly dependent on technology transfer, where entrepreneurial innovation flows from basic research, to applied research, to demonstration and finally to commercialization of new products and services. A strong base of research and development and innovative technology is needed to deliver highly sophisticated and commercially viable green products and services.



Because they are knowledge-based industries in what is a relatively new sector, new environmental technology companies have difficulty obtaining financing. Traditional financing sources often do not understand the market or the technology and may be uncertain about liability risks associated with investing in environment-related projects.

The domestic regulatory environment is a crucial starting point for green technology development. Although Ontario firms must get into the export market early, they must first demonstrate and validate their technology at home. GIMAC identified domestic regulations and guidelines as a driving force in market growth. Ontario green industries need to be more involved in and informed about the development of regulations so that they can develop the needed technologies before these regulations are announced.

The green industry sector needs a variety of skilled workers, particularly those with management skills. The sector consists mostly of small and medium-sized companies. Many of them were started by scientists or engineers and have great strengths on the science and technology side. However, they tend to need management skills such as marketing, human resource management, strategic planning, finance, communications and public relations.

The Ontario market, while sufficiently large for early stage business development, is generally too small to support long-term growth and stability. Ontario suppliers must do business in export markets if they are to continue to grow.

Green Industry Strategy

THE STRATEGIC VISION FOR THE SECTOR IS AN INNOVATIVE AND INTERNATIONALLY COMPETITIVE GREEN INDUSTRY sector in Ontario which offers high quality jobs and develops leading edge environmental solutions for domestic and export markets.

Working with the Ontario government, industry will take the lead on a wide variety of inter-related initiatives focusing on three critically important areas: technology development, business development and trade promotion.

1 Technology Development

To promote the development of new green technologies and help bring them to market, the Green Industry Strategy will:

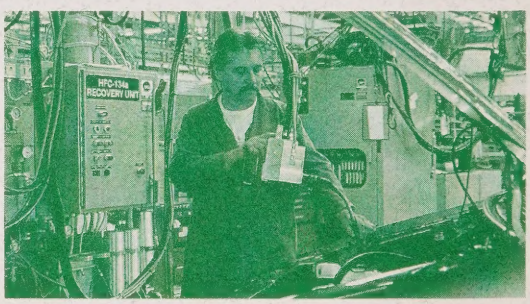
A. Stimulate Innovation

☼ An industry task force will be set up to analyze performance-based regulations and recommend an approach to their use. The task force will report in one year. GIMAC sees performance-based environmental regulations — that is, regulations which set standards but do not specify the technology to be used — as an important way to encourage innovative green technology development .

☼ The earlier that green industries are informed about environmental regulations, the earlier they can start to develop technologies to fill emerging needs. Green industry representatives will play a more active role when regulations are being developed.

B. Streamline Approvals

☼ MOEE will streamline approvals to facilitate the demonstration of innovative technologies in waste management.



Green technologies create green jobs.

2 Business Development

To promote the growth of green industries, the Green Industry Strategy will:

A. Expand Local Markets

☼ Potential customers and suppliers will be put in touch with one another through community-based programs. For example, suppliers will be given market information gathered in provincial programs such as Home Green Up; and information and listings of suppliers will be provided to communities and industrial facilities taking part in the provincial Green Industry Analyses and Retrofits Program.

☼ Working together, industry and various ministries will identify opportunities for industries in targeted sectors to adopt green technology that would produce environmental and cost savings. MOEE studies already completed have identified greening opportunities for the meat and poultry products industry, and the adhesives and coating industry.

☼ A strategy will be developed to promote public and private sector procurement of green goods and services that contribute to local economic development. Ontario Hydro, the Ontario Clean Water Agency and private sector businesses are among those who have indicated interest in participating.

B. Certify Green Products and Services

✲ Industry will take the lead in developing a certification system to attest to the quality and reliability of green goods and services. This will encourage investment in new green products and help in marketing locally and abroad.

C. Enhance Investment in Sector

✲ Industry and government will explore options for forming local venture capital pools in communities where the green industry sector has a strong presence.

✲ The impact of newly formed expert venture capital funds will be monitored to determine whether a new expert investment corporation should be explored. Expert venture capital funds are funds with specific expertise — in this case, expertise in green industries — that provide capital for start-up and expansion.

✲ To increase public awareness of the investment potential of this sector, financial profiles and information on successful green industries will be made available to potential investors. These will be developed in cooperation with the financial community.

✲ Green industries will be informed of provincial changes in taxation that benefit the sector. As well, green industries will be represented in provincial government discussions relating to small business financing.

D. Enhance Skills of Sector

✲ Reports of the Canadian Council for Human Resources in the Environment Industry will be used to identify training gaps for the green industries.

✲ To fill the gaps identified, training packages will be developed with the help of appropriate ministries and agencies including the Ontario Environmental Training Consortium.

✲ Management training courses and workshops for green industries will be developed through partnerships with appropriate universities.

The Green Industry Strategy builds markets at home and abroad.

3 Trade Promotion

To help the green industry sector capitalize on growing opportunities in international markets, the Strategy will:

A. Provide Market Intelligence

✲ The Ontario Ministry of Economic Development and Trade and the federal government will provide green industries with access to export market information from foreign government offices and will provide foreign markets with information about Ontario suppliers. As well, green industries will receive export market information through organizations such as the Canadian Environment Industry Association (CEIA), various other industry associations and OCETA.

Strong export markets are key to the success of the green industry sector.

✲ To help green industries to win export orders arising from international development agency projects, there needs to be coordination of information on environmental projects sponsored by agencies such as the World Bank, United Nations Conference on Environment and Development (UNCED) and the Global Environment Facility. A clearing house for this purpose will be established with industry and other stakeholders.

B. Promote Sector Industries

✲ Export representatives will be established in priority export markets to provide services to help Ontario companies access those markets.

✲ Trade missions will be sent to potential export markets to promote Ontario's green products and services. Active promotion will also be aimed at incoming trade delegations.

C. Encourage Partnering

✲ To encourage green industries to pool their skills and resources so that they are strong enough to meet international competition, the government and industry will take steps to facilitate the formation of joint ventures and consortia. For example, workshops on financing and the legal implications of forming export consortia will be organized with industry. A broker service to facilitate consortia will also be initiated.

Opportunities for Growth

UNLIMITED — THAT'S THE WORD MOST OFTEN USED TO DESCRIBE THE POTENTIAL FOR growth in world markets for environmental products and services. A strong and innovative green industry sector will enable Ontario to access those rapidly growing markets. Among the benefits: a wide range of jobs — all levels of jobs, but high tech, value-added jobs in particular.

Climate change, diminishing clean water supplies, environmental degradation in many forms — plus a shift in public values and attitudes, regulation and international agreements are combining to create a dramatic and accelerating increase in demand for green products and services around the world.

This Solar Aquatics Sewage Treatment System purifies water using the same principles as a marsh ecosystem.

The world market for environmental products and services is estimated at $300 billion today and expected to grow to $600 billion by the year 2000. Growth is fastest in technology for air pollution control, waste management and water treatment — the last two being areas of Ontario's greatest expertise.

Key export markets for Ontario's green industry are the United States, currently valued at $120 billion a year and expected to grow to $150 billion by the year 2000; Mexico, where by the end of this decade the market for pollution control devices alone is expected to be $10 billion; and Asia — in China alone, the environmental market is estimated at $30 billion over the next decade.

The Canadian market is also growing rapidly, especially for products and services dealing with water quality and recycling. The Canadian market, at present valued at approximately $11 billion, is expected to double by the year 2000 — and most of this growth is expected to be in Ontario.

In short, the green industry sector is one of the fasting growing sectors in Canada and the world.

Around the world, regulation has proved to be a stimulus for growth. In Ontario, for example, stimulus has come from 3Rs regulations and programs such as Countdown Acid Rain. 3Rs regulations, which came into effect early in 1994, require business, industry and most municipalities to reduce waste. The Countdown Acid Rain program, introduced in 1985, sets limits on sulphur dioxide emissions for four major industrial companies. Inco has, as a result, pioneered a new bulk smelting process to recover sulphur dioxide emissions from the smelting furnaces before they reach the atmosphere.

> When we launched our magazine seven years ago, our cover headline said Canada's total spending in this sector would be $2.1 billion annually. Soon Ontario's estimated spending alone had risen to $2.1 billion. In the past seven years, every projection of market growth in the environmental sector has had to be revised dramatically upward within a very short period. The numbers are staggering. Ontario's municipal water and wastewater treatment plants alone are said to require $19 billion to upgrade and expand. And that's just two areas. It doesn't even include industry or air pollution. I don't think anyone can make a really accurate prediction; the projections are moving upward dramatically virtually day by day.
>
> Tom Davey
> Publisher
> Environmental Science & Engineering Magazine

Examples also include the burgeoning markets for air pollution control technology and solid waste treatment and disposal technologies in the US. Growth is attributed to regulations taking effect between 1995 and 1997 under the Clean Air Act Amendments of 1990 and new Environmental Protection Agency regulations reducing the number of solid waste landfills.

Another stimulus is international agreements. For example, 74 nations have signed the Montreal protocol on chlorofluorocarbons (CFCs), which commits them to a 50 per cent reduction in emissions of those ozone-damaging chemicals by the year 1998.

An Ontario company is already poised to take advantage of opportunities in this area. Halozone Technologies Inc. holds exclusive licensing rights to Blue Bottle, an award-winning technology which captures and recycles CFCs and can reduce CFC emissions to zero.

Green industry is a fast-growing sector which offers potential for training and employment for many of our members who have suffered during the downturn. We're looking to the sector to provide sustainable jobs which have both economic and environmental benefits. We're particularly interested in training opportunities to green the workplace and promote education on energy, waste and water conservation.

Rick Coronado
Windsor & District
Labour/Environment
Project
Canadian Auto Workers

As domestic and foreign markets grow, so will Ontario's green industry sector — supported by initiatives in the Green Industry Strategy — and so will the number of jobs. A Canada-wide survey of environmental firms in 1992 found that 90 per cent of waste management firms and 70 per cent of consulting firms expected employment growth over the next five years. New jobs will be created not only in the green industry sector, but also in other sectors as green technologies, products and services become more widely used.

Green industry is already a significant employer in Ontario. The environmental protection subsector alone employs about 30,000 people and grew at an average rate of eight per cent a year between 1986-90. This subsector employs more people than either the pulp and paper or the chemicals sectors in Ontario and among industrial sectors is the third largest employer.

Growth in the green industry sector will increase the demand for professionals and skilled and semi-skilled workers. Ontario, with a network of universities and community colleges, is well able to provide Ontarians with the education and training required for the wide range of jobs in the sector.

The Canadian Council for Human Resources in the Environment Industry lists 17 occupational groups or "families" of jobs in the environmental sector and more than 200 individual jobs and occupations. These include scientists, engineers, technologists and technicians — for example, air quality engineers, analytical chemists, toxicologists, hazardous waste engineers, water quality technicians and risk assessment specialists.

They also include occupational safety and health inspectors, lawyers and economists, managers and administrators, plant operators and truck drivers, purchasing agents and financial auditors, and a host of others who can be involved exclusively or to some degree in environmental employment.

From our perspective as a firm specializing in human resources, long-term planning and senior executive recruiting in the environmental sector, we see strong employment potential for technical and skilled professionals in this high-growth field. The challenge for many small and medium-sized firms which make up the Ontario sector is to move into export sales. This means we need to see more companies forming strong consortia, offering a wide range of compatible services or products, and a strong skill mix to serve international clients. The markets are there — the challenge is to join forces to access them.

France Simard
Partner
Metzler & Company

Essential Partnerships

ONTARIO'S GREEN INDUSTRIES FACE FORMIDABLE competitors in international markets. Many are multinational corporations and many have forged strong partnerships with their national governments. Germany and Japan, for example, have gained world leadership in the environmental sector, thanks in large part to a government-industry united front. The federal government in Canada has recently released a national strategy to support this important sector.

GIO/IC MEMBERS

Chairman : Dr. Andrew Benedek, Chairman and CEO of Zenon Environmental Inc.

Greg Allen, Principal, Allen Associates

Jake Brooks, Executive Director, Independent Power Producers Society of Ontario

Rick Coronado, Coordinator, Windsor Labor Environment Project, Canadian Auto Workers

Dr. Anton Davies, Principal, Rowan William Davies & Irwin Inc.

Dusanka Filipovic, President and CEO, Halozone Technologies Inc.

Gary Gallon, President, Ontario chapter, Canadian Environment Industry Association

Glenda Gies, Associate Consultant, Recycling Development Corp.

Richard Harris, President, KPMG Environmental Services Inc.

Dr. James Higgins, President, Environmental Technologies Dev. Corporation

Jack McMillan, Marketing Coordinator, Environmental Programs, Corporate Division, Canadian Standards Association

Anne Mitchell, Executive Director, Canadian Institute for Environmental Law & Policy

Jane Pagel, President, Zenon Environmental Laboratories, Zenon Environmental Inc.

John Perquin, Health and Safety Coordinator, United Steelworkers of America, District 6

Robert Redhead, Director, Government Relations, Laidlaw Inc.

Dr. Abraham Turkson, Vice-President of Marketing and Sales, Albarrie Canada Limited

Ontario's green industries are mostly small and medium-sized and the Canadian market is too small to support their long-term growth. They must do business in international markets if they are to grow to their full potential. In fact, they must be internationally competitive, simply to maintain their share of the domestic market.

It is essential therefore that Ontario's environmental companies join forces — with all levels of government and with each other. Ontario companies have been doing just that. But while such alliances are not new, in recent years they have taken on new life, growing rapidly in both number and strength.

In early 1992, the provincial government established within the Minisitry of Environment and Energy (MOEE), the Green Industry Office (GIO) to provide a one-window approach to the Ontario government for sector stakeholders and to link with the federal government. The GIO includes the Environment Business Development Unit (BDU) which provides one-stop assistance for companies seeking business development support, financing and marketing information.The Environment BDU has responded to more than 2,000 public inquiries since it was established in early 1993.

The Green Industry Strategy is prime evidence of government-industry partnerships. The strategy had its roots in the work of the Ontario chapter of the Canadian Environment Industry Association (CEIA) which worked with the GIO to launch the Green Market Opportunities Program (GMOP) in late 1992. GMOP brought together 25 industry associations and about 50 private sector participants in an industry consultation process which produced a series of recommendations for the strategy.

The success of GMOP laid the foundation for the appointment of the Green Industry Ministerial Advisory Committee in 1993. GIMAC's role was to review the numerous green industry sector initiatives already underway and to steer the development of a formal sector strategy. The committee began its work in October 1993 and presented its report and recommendations to MOEE in April 1994. Its advice and recommendations form the core of the Green Industry Strategy.

GREEN SUCCESS STORY:

Arlat Technology, Bramalea

Arlat Technology, which manufactures equipment to treat and clean wastewater, has carried out some innovative material substitution in its products — for example, replacing metal, which corrodes, with plastic. The company competes successfully in the North American market, and has had a five-year average growth rate in exports of 10 to 15 per cent. Five years ago, the company had five employees; today there are 15.

Other key players, working with the government and each other to promote the growth of the green industry sector in Ontario, include:

* The federal government. The recently released "A Strategy for the Canadian Environmental Industry" provides a national context for activities to promote this sector. The Ontario government and industry will work with the federal government to ensure appropriate support for the Ontario sector and no duplication of initiatives. In particular, Ontario will work with federal departments and agencies such as Foreign Affairs and the Export Development Corporation to promote exports and trade for Ontario's green industries.

* The Canadian Environmental Industries Association (CEIA), Ontario chapter. CEIA is a rapidly growing association formed to represent the interests of its members who, in addition to environmental companies, include other industry associations, business institutes, colleges and training institutes, municipal bodies and national institutions such as the Canadian Standards Association and the National Research Council. CEIA Ontario has played a leading role in activities undertaken with government in recent years to strengthen the green industry sector. It has made an invaluable contribution to the Green Industry Strategy, through its work with GIO and GMOP and through its representatives on GIMAC.

* The Ontario Centre for Environmental Technology Advancement (OCETA). This environmental technology transfer centre, led by industry, was founded in 1994 to help small and medium-sized environmental companies advance and commercialize their technologies. Now in its start-up phase, it will offer clients services such as technology evaluation, technology assistance, market assessment, business advisory services, and information networking. It will also provide regulatory information, financial advice, export assistance and education and training.

* Ontario Centres of Excellence. Two of Ontario's Centres of Excellence — the Waterloo Centre for Groundwater Research and the Ontario Centre for Materials Research — support green industries by facilitating the conversion of environmental research into commercial applications. These were among seven Centres of Excellence launched by the Ontario government in 1987. Typically a centre consists of a consortium of industry and university research units prominent in a field of

GREEN SUCCESS STORY:

Canada Soil Exchange Ltd., Ottawa

Canada Soil Exchange Ltd. specializes in the clean-up of soil contaminated with a variety of fuels. The company is only two years old and is already looking at export markets in the United States, South America and the former Soviet Union.

The company offers on-site soil remediation using its mobile thermal desorption units — making its equipment available to any site in the country. In only a few minutes, the unit cleans contaminated soil for reuse. Originally developed in the United States, the technology has been adapted by Canada Soil Exchange for use in the Canadian climate and marketplace.

The Canadian company had sales of $5 million in 1994 and expects sales will climb to $7.5 million in 1995. CSE has 16 employees.

science considered to be of potential economic benefit to Ontario.

* Ontario colleges and universities. These institutions will play a key role in helping to train future workers for green industries. For example, training programs on energy efficiency in the building sector and on waste audits are being delivered through a number of community colleges.

The Ministry of Environment and Energy and many other parts of the Ontario government, have worked together and with local and province-wide partners in the private sector to support activities promoting green industries in Ontario.

For example, there have been many provincial initiatives to help to build the residential market for the green industry sector. These include regulations in the Ontario Building and Plumbing Codes which promote conservation of energy and water and initiatives such as Home Green Up and Build Green.

Home Green Up is a $26-million undertaking that will provide green home assessments to an estimated 250,000 households in 23 communities across the province. The initiative stimulates investments in home improvements to reduce energy and water use and household waste. In addition to MOEE, homeowners and communities, the partners include Canada Trust, which helps homeowners with Enviroloans — loans made at the prime lending rate with up to a 10-year payback period.

GREEN SUCCESS STORY:

Albarrie Canada Limited, Barrie

Albarrie Canada Limited, which specializes in clean air technology and waste containment, is a global leader in the removal of particulates from industrial gases. It also produces geo-synthetic clay liners for landfills.

The company had a 25 per cent growth rate in sales over the past five years and the same growth in jobs. It now employs 200 people across Canada.

Exports account for half of its sales. While its main export market is the United States, the company also exports to Central and South America, Europe and the Pacific Rim. It is now looking at markets in eastern Europe and Africa.

Albarrie composite filter media for dust collectors are the only products capable of operating at relatively high velocities without deterioration in emissions or increase in pressure drop. The products are patented in Canada, the US, the European Community, Japan and Australia.

GREEN SUCCESS STORY:

Philip Environmental Inc., Hamilton

Formed in the early 1980s as a solid waste recycler in the Hamilton area, Philip Environmental today is the largest recycler of solid, chemical, ferrous and non-ferrous waste in Canada, and one of North America's leading environmental services companies. It has 2,800 employees in its operations throughout Canada and the United States.

In 1994, the company created two new divisions: Philip Utilities Management Corporation which has a 10-year contract to operate the Hamilton-Wentworth water and wastewater treatment plant; and the Environmental Research and Development Capital Corporation, a venture capital company to invest in promising new environmental technologies.

Revenues have increased by more than 1100 per cent in the past three years. Projected revenues for 1994 are more than $500 million, with 40 per cent coming from US operations.

The Build Green Program is a partnership between ORTECH and the Greater Toronto Home Builders Association, supported by the Ontario government. Its primary objective is to increase consumer and builder awareness of the wide range of recyclable construction materials available and to encourage their use. This highly innovative program has attracted attention in the United States and the Ontario partners are currently working with the US National Association of Home Builders on a North American program which would significantly expand the market for these green building products.

Energy retrofits play a large part in stimulating markets while also creating jobs. The province very recently announced a number of initiatives to encourage energy retrofits in government buildings and in the municipal sector. They include support for the International Council on Local Environmental Initiatives (ICLEI) which will work with municipalities to identify retrofit opportunities.

Other initiatives help to build the industrial market for the sector. The Green Industrial

GREEN SUCCESS STORY:

Trojan Technologies Inc., London

Trojan Technologies Inc., the world's leading supplier of municipal wastewater ultraviolet (UV) disinfection systems, recorded gross sales of $22.6 million in the fiscal year 1994, a 42.4 per cent increase over the previous year. Net income climbed by 74 per cent, to $2,044,000. Export markets accounted for more than 90 per cent of sales.

The company designs and manufactures municipal, residential and industrial ultraviolet water and wastewater treatment systems. It attributes its strong growth to the preference in export markets for UV technology as an environmentally safe, cost-effective alternative to chlorination.

Trojan was founded in 1976 with three employees; today it has 90. The company is based in London and has sales offices in The Hague, Holland, and in California. It exports to Europe, Latin America, Australia, the Middle East, Far East and the US.

Analyses and Retrofits Program, for example, helps companies to identify cost savings in energy and water use, waste disposal and pollution prevention. Designed in consultation with the Consulting Engineers of Ontario, green analyses and the recommended retrofits are cost-shared by MOEE and the companies themselves. This initiative represents the first integrated environmental industrial analysis program in North America and has identified an average 20 per cent environmental and cost savings for participating companies to date.

As well, there are various kinds of support for technology development. The government helped to fund OCETA and MOEE runs technology programs to support economic development through the greening of industry. For example, the EnerSearch program, the Industrial Process Equipment Demonstration program and the Market Entry for Energy-Efficient Technologies program support technologies promoting energy efficiency, water and material conservation, and pollution prevention.

The Ministry of Economic Development and Trade (MEDT) has a number of programs which could help companies in the green industry sector. These include the New Ventures program, which provides government-guaranteed personal loans to new small businesses; the Trade Expansion Fund, which provides funding to potential exporters to improve their export readiness; and the Technical Personnel Program, which provides funding to encourage companies to hire new technical and scientific personnel.

It is also important to stimulate investment in the development of innovative technologies, products and services. The Ontario government has introduced a 10 per cent refundable Ontario innovation tax credit, effective in January 1995, to encourage and support companies that invest in research and development. It is refundable to ensure that small and medium-sized firms, including start-up companies, will benefit.

GREEN SUCCESS STORY:

Crane Canada, Trenton

Crane, which produces a range of ceramic bathroom products, introduced two new ultra low flush toilet (ULF) models in 1993. They use 70 per cent less water (6 litres) than conventional toilets (16-20 litres). The ULF toilets, manufactured in Trenton, are certified by the Canadian Standards Association.

Sales across Canada are growing dramatically and, within a year of start-up, production has increased five-fold. Home retrofits are a big factor behind the increase in demand. The company expects to produce 38,000 units in 1994, and is currently investigating export opportunities. It has about 125 employees.

GREEN SUCCESS STORY:

L.O.B. Blasting Mats, Sturgeon Falls

This is a small company (6-12 employees) which manufactures blasting mats from scrap tires. Blasting mats are used to confine debris to a blasting site. With MOEE funding, the company purchased new equipment in 1994 which enables it to recycle truck tires in addition to tires from passenger vehicles. The use of truck tires makes it possible to produce a stronger blasting mat. With the new equipment, the company more than doubled the number of tires it diverts from landfill sites — 257,000 from 126,000 annually.

GIMAC Report: Executive Summary

Developed by

THE GREEN INDUSTRY MINISTERIAL ADVISORY COMMITTEE

GREEN INDUSTRY SECTOR STRATEGY FOR ONTARIO

April 1994

CHAIR'S MESSAGE

The early 1990s have been a very difficult period for Ontario. During this period worldwide competition has forced many of our plants to close and future prosperity now rests on our ability to foster industries that can succeed in a rapidly changing world economy.

Ontario has a strong base in green technologies and environmental businesses are growing significantly faster than other sectors of the economy. As such, the providers of environmental goods and services, the so-called Green Industries, must be considered as one of the potential new engines of growth for Ontario.

Recognizing this growth opportunity, the Ontario government created the Green Industry Ministerial Advisory Committee (GIMAC), supported by an excellent team from the MOEE, to develop a strategy and to identify initiatives to strengthen the green industrial base.

The committee consisted of exceptional Ontarians from a wide variety of backgrounds. In October 1993, the committee began developing its recommendations, working rapidly as the government had requested completion of its report early in 1994. This report is the result of an intense dedicated effort by the committee and its support staff over a relatively short amount of time.

The recommendations of the committee are the fruits of our hard work. Once implemented, these recommendations will create many thousands of skilled jobs in Ontario, will safeguard our environment and will help to ensure the sustainability of our industrial base. In fact, their implementation will ultimately result in a re-engineered Ontario where our citizens will lead healthy, prosperous lives in harmony with nature.

These recommendations are generally strategic realignments that will cost relatively little and may even save money. In this age of necessary government restraint, this too was important to the committee.

So all in all, I am proud of the work of the committee. We completed our assignment on time, found cost-effective recommendations that will generate a new future for Ontario and the committee members worked without pay. May Ontario always get such good value for its expenditures.

Dr. Andrew Benedek
GIMAC Chairman

EXECUTIVE SUMMARY

BRIEF DESCRIPTION OF ONTARIO'S GREEN INDUSTRIES

The green industry sector is composed of companies whose primary source of revenue is derived from delivering environmental solutions to others. Green industry refers to the technologies, goods and services which promote: (a) environmental protection; (b) water and energy conservation/efficiency, waste reduction/reuse/recycling (3R's); remediation; and (c) pollution prevention. Green industries will continue to grow with emerging technologies.

Green industries provide solutions, through innovative technologies and re-engineered processes, to global and local environmental threats such as climate change and diminishing clean water supplies. The adoption of green technologies and practices by other economic sectors in Ontario strengthens industry and makes our economy more environmentally sound. Support for the green industry sector will move Ontario closer to sustainable development by simultaneously advancing pollution prevention and resource conservation, as well as Ontario's economic development goals. Green industries are an instrument for the development and diffusion of environmental technologies and skills throughout the broader economy and will function as a primary agent of restructuring for sustainability.

A VISION FOR ONTARIO'S GREEN INDUSTRY SECTOR

The Green Industry Ministerial Advisory Committee (GIMAC), with representation from industry, business, labor and environmental organizations, has been established to steer the development of a formal Green Industry Sector Strategy for Cabinet review. GIMAC has defined our vision for Ontario's green industry sector in the following terms:

Green industry is an internationally recognized and competitive provider of innovative environmental goods and services creating sustainable, ecological, social and economic improvement for the Ontario of tomorrow.

During the fall and winter of 1993/94 GIMAC held a number of meetings to discuss sector definition including strengths, weaknesses, opportunities and threats, to identify strategic goals for the sector and to develop recommendations for strategic initiatives which will help achieve this vision.

SUMMARY OF GIMAC RECOMMENDATIONS

To enable Ontario's green industry sector to reach its maximum growth potential and fulfill GIMAC's vision, eleven recommendations have been developed. These recommendations are based on our belief that over time and under the right framework, applying environmental solutions will benefit suppliers of green products and services, user industries requiring these solutions, and the natural environment of which we are a part. To reach our vision, Ontarians must re-engineer the way we produce goods and services and adopt environmentally aware lifestyles. In

essence, this means Ontarians can employ green technologies in order to move towards a world where environmental and economic goals are compatible and consistent.

It is the committee's belief that these recommendations, if adopted, will allow Ontario to become a world leader in fostering a strong green industry. Ontario green industry will benefit from new export markets, new high quality, skilled jobs and a secure environment for future generations. GIMAC presents four categories of recommendations which will start us in that direction:

A. Support the Use of New Green Technologies and Practices

Recommendation 1: Devise a certification scheme for environmental technologies and then support it.

Recommendation 2: Encourage procurement relationships between Ontario's green industry and provincial, regional and municipal governments and crown corporations.

Recommendation 3: Use Ontario's industrial programs to support green R&D and to encourage green technology.

B. Align Ontario Government to Facilitate the Use of Environmental Technologies

Recommendation 4: Ensure environmental policies, programs and regulations are clear, progressive and consistently enforced.

Recommendation 5: Develop policy and a regulatory system that is open to new technologies.

Recommendation 6: Encourage the use of economic instruments when developing regulations.

C. Ensure that Ontario Green Industries Have Support Mechanisms Equal to or Better than Other Jurisdictions

Recommendation 7: Participate with the federal government to maximize support for Ontario green industries.

Recommendation 8: Develop export markets using market intelligence and consortia.

Recommendation 9: Devise cost-effective mechanisms and incentives to help finance Ontario's green industries.

D. Diffuse Environmental Technologies and Practices Through Communities and Industries.

Recommendation 10: Develop training initiatives which accelerate the greening of industries and communities.

Recommendation 11: Instill environmental values and principles of stewardship at all education levels.

OUR MEASURE OF SUCCESS

These recommendations are designed to get Ontario on the road to achieving the GIMAC vision. Each measure aims to produce maximum results for the lowest possible cost. Our measures of success will be in both economic and environmental terms: the number of high quality, well paid jobs generated; increased sector growth rate and exports; improved environmental quality; and a healthier, more sustainable economy. The employment generated from new green industries, along with improvements in air and water quality and resource conservation, are benefits that should significantly exceed the cost of implementing this strategy. Achieving the GIMAC vision will ensure ecological, social and economic improvement in Ontario for future generations. All stakeholders—industry, business, government, labor and the environmental community — must work together *now* to make GIMAC's vision a reality, while this window of opportunity is still open to Ontario's Green Industries.

GIMAC MEMBERS

Chairman : Dr. Andrew Benedek, Chairman and CEO of Zenon Environmental Inc.

Greg Allen, Principal, Allen Associates

Jake Brooks, Executive Director, Independent Power Producers Society of Ontario

Rick Coronado, Coordinator, Windsor Labor Environment Project, Canadian Auto Workers

Dr. Anton Davies, Principal, Rowan William Davies & Irwin Inc.

Dusanka Filipovic, President and CEO, Halozone Technologies Inc.

Gary Gallon, President, Ontario chapter, Canadian Environment Industry Association

Glenda Gies, Associate Consultant, Recycling Development Corp.

Richard Harris, President, KPMG Environmental Services Inc.

Dr. James Higgins, President, Environmental Technologies Dev. Corporation

Jack McMillan, Marketing Coordinator, Environmental Programs, Corporate Division, Canadian Standards Association

Anne Mitchell, Executive Director, Canadian Institute for Environmental Law & Policy

Jane Pagel, President, Zenon Environmental Laboratories, Zenon Environmental Inc.

John Perquin, Health and Safety Coordinator, United Steelworkers of America, District 6

Robert Redhead, Director, Government Relations, Laidlaw Inc.

Dr. Abraham Turkson, Vice-President of Marketing and Sales, Albarrie Canada Limited

GREEN INDUSTRY STRATEGY
STRATÉGIE ÉCO-INDUSTRIELLE

☼ *Additional copies of the Green Industry Strategy (PIBS# 3291E) as well as copies of the complete GIMAC Report (PIBS# 3292E) are available by contacting the Ontario Ministry of Environment and Energy, Public Information Centre, 135 St. Clair Ave. W., Toronto, ON, M4V 1P5. Telephone: (416) 323-4321 or toll-free 1-800-565-4923. Fax: (416) 323-4564.*

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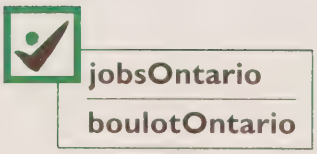

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Ontario's Green Industry Strategy: A Summary

Government Publications

GREEN INDUSTRY STRATEGY
STRATÉGIE ÉCO-INDUSTRIELLE

Ontario's Green Industry Strategy is designed to strengthen and advance the province's green industry sector — companies that offer goods or services to prevent pollution, protect or clean up the environment. The strategy is based on recommendations made to the Ontario Ministry of Environment and Energy by the Green Industry Ministerial Advisory Committee (GIMAC), a 16-member group representing industry, labor and the environmental community. The strategy was officially launched on November 15, 1994.

Long-term vision

An innovative and internationally competitive green industry sector in Ontario which offers high quality jobs and develops leading edge environmental solutions for domestic and export markets.

Objectives

- To stimulate the growth of the green industry sector, thereby creating new wealth and highly skilled, long-term jobs
- To enhance the competitiveness of all industries by promoting the use of green products and services
- To promote environmental protection, pollution prevention and resource conservation

Current status

There are thousands of successful firms in Ontario's green industry sector, most of them small and medium-sized. The four main subsectors are environmental protection, which is the largest, resource conservation and efficiency, pollution prevention and the 3Rs (waste reduction, reuse and recycling).

Sector's needs as identified by GIMAC

- Innovative Technology
- Export Markets
- Environmental regulations and guidelines
- Better access to financing
- Skills training

Major components of Ontario's Green Industry Strategy

1. Technology Development

- Stimulate innovation by involving green industries in regulation development by setting up a task force to examine performance-based environmental regulations
- Streamline government approvals of new technologies
- Provide continued support for research and development and commercialization

2. Business Development

- Expand local markets by linking suppliers to government retrofit programs (e.g. Home Green Ups)
- Investigate with industry and federal government, a certification system for green products and services
- Enhance investment in the sector
- Develop training strategies

3. Trade Promotion

- Access and disseminate information on export market opportunities
- Support export representatives in key growth regions
- Support formation of green industry consortia to penetrate overseas markets

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GREEN INDUSTRY STRATEGY
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Opportunities

Both the Canadian market for green products and services, currently valued at $11 billion, and the world market, currently valued at $300 billion, are expected to double by the year 2000. Key export markets for Ontario's green industry are the United States, Latin America and Asia.

The sector is already a significant employer in Ontario; the environmental protection subsector alone employs about 30,000 people. Growth in the sector is expected to increase the demand for a wide variety of professionals and skilled and semi-skilled workers.

Partnerships

The development and implementation of Ontario's Green Industry Strategy is a partnership effort involving green industry companies, the Ontario and federal governments, labor and Ontario communities.

Development and implementation of the Green Industry Strategy reflects the Ontario government's commitment to this new, high growth sector. It builds on a number of existing green industry initiatives, including: the Ontario Centre for Excellence in Technological Advancement (OCETA); Home Green Ups; Green Industry Analyses and Retrofits; the Green Workplace; and Build Green.

FOR MORE INFORMATION

To obtain copies of Ontario's Green Industry Strategy (PIBS #3219E) or the GIMAC Report (PIBS #3292E), contact:

Public Information Centre,
Ministry of Environment and Energy,
135 St. Clair Ave. W., Toronto, ON M4V 1P5.

Phone: (416) 323-4321 or
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Ontario's Green Industry Strategy

Ministry of Environment and Energy
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Ontario

News Release
Communiqué

Ministry of Environment and Energy
Ministère de l'Environnement et de l'Énergie

November 15, 1994

Premier Rae announces Green Industry Strategy

Premier Bob Rae today announced the details of Ontario's Green Industry Strategy to strengthen this key sector by supporting new environmental technologies, expanding markets and promoting exports.

Companies in the green industry sector supply goods and services which prevent pollution, protect or clean up the environment. Examples range from energy-efficient lighting products to wastewater treatment equipment and soil remediation technologies.

"Green industries offer unlimited opportunities to strengthen the economy and put Ontarians back to work, while also protecting the environment," Premier Rae said at the Environment and Energy Conference of Ontario. The conference is being held at the Metro Toronto Convention Centre.

"The Green Industry Strategy will ensure that Ontario enters the twenty-first century on competitive terms with anyone, anywhere," Premier Rae said.

In response to consultation with sector stakeholders, the Green Industry Strategy focuses on three key areas: technology development, business development and trade promotion. The strategy will:

- Promote Ontario exports by encouraging green industries to pool skills and form export consortia; setting up an industry clearinghouse to disseminate market intelligence; and conducting targeted trade missions.

- Strengthen Ontario businesses by linking suppliers to market opportunities from government retrofit programs; developing training packages; promoting sector investment; and exploring a certification system for green products.

- Support innovative environmental technologies. For example, green industry will be directly involved in the development of environmental regulations. An industry task force will be set up to advise on the effectiveness of regulations in spurring the development of new technologies.

"Today's announcement by Ontario Hydro of $110 million to support future renewable energy technologies shows how the Green Industry Strategy can be put into action," said Environment and Energy Minister Bud Wildman.

"Renewable energy sources are an important component of our New Energy Directions policy, which emphasizes meeting our energy needs in an environmentally sensitive manner," Mr. Wildman added.

The international market for green industry is worth an estimated $300 billion per year. The World Bank's International Finance Corporation predicts that it will triple by the year 2000.

Ontario's green industry sector is composed of a number of sub-sectors. For example, the environmental protection sub-sector includes over 2,000 companies which generate an estimated $2.5 billion in annual sales. The environmental protection industry provides jobs for over 30,000 people, making it Ontario's third-largest employer.

The Ontario Green Industry Strategy is based on the recommendations of the Green Industry Ministerial Advisory Committee (GIMAC). GIMAC was chaired by Andrew Benedek, Chair and CEO of Zenon Environmental, and included representatives from industry, labor and environmental groups.

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* **Version française disponible**

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Background

The Ontario green industry sector

The rapidly growing world market for environmental products and services is estimated at $300 billion today. Growth is fastest in technology for air pollution control, waste management and water treatment -- the last two being areas of Ontario's greatest expertise.

Canada's green industry sector generated more than $10 billion in revenues in 1992. Approximately half of the national sector is located in Ontario. Ontario's green industry sector is growing at twice the rate of the Ontario economy as a whole.

Partnerships

The development and implementation of Ontario's Green Industry Strategy is a partnership effort involving green industry companies, the Ontario and federal governments, labor, environmental groups and Ontario communities.

The strategy builds on a number of existing green industry initiatives, including: the Ontario Centre for Environmental Technology Advancement (OCETA); Home Green Ups; Green Industry Analyses and Retrofits; the Green Workplace; and "Build Green."

Sectoral Development Approach

The Green Industry Strategy consultation process is part of the Ontario government's Industrial Policy Framework, which places new emphasis on working with sectors to advance industrial development.

The Sector Partnership Fund, a $150-million fund managed by the Ministry of Economic Development and Trade, was established to provide financial support for initiatives which emerge from sectoral consultations between the Ontario government and representatives of companies, workers and others. Green industry sector initiatives will be further developed to provide access to funding from the Sector Partnership Fund.

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